Behavioral Effects of Mindfulness-Based Stress Reduction on E-Work Stress, Job Satisfaction, and Emotional Exhaustion among University Teachers: A Randomized Controlled Trial

Fatima Javaid*, Dr. Subha Malik**, Dr. Umm E Rubab Kazmi***

*Ph.D scholar, Department of Applied Psychology, Lahore College for Women University Lahore,
**Assistant Professor, Department of Applied Psychology, Govt Gulberg College for Women, Lahore.
***Assistant Professor, Department of Applied Psychology, Lahore College for Women University, Lahore, Pakistan.

Abstract

This study aimed to investigate the effects of Mindfulness-Based Stress Reduction (MBSR) on E-work stress, mindfulness, job satisfaction, and emotional exhaustion among university teachers. This study was a randomized controlled trial (RCT) (pre-post research design) based on 8-week intervention plan. Participants were randomly assigned to either the intervention group or control group (N=28). The intervention group received MBSR, while the control group participated in a Health Enhancement Program (HEP) to assess the efficacy of the intervention. The results from pre- and post-assessments indicated that the intervention had notably elevated levels of mindfulness and job satisfaction (M=19.78, SD=2.99), along with reduced levels of e-work-related stress ($M = 65.57$, $SD = 20.33$) compared to control group ($M = 99.71$, $SD = 7.11$). At post assessment, mindfulness was enhanced in intervention group as compared with control group at ($M = 78.92$, SD=4.53), while job satisfaction was improved in intervention groups at (M=11.92, SD=9.92). The study's findings underscore that mindfulness has a positive influence on mitigating stress and psychological distress within the university workplace, ultimately benefiting individuals and institutions alike. In conclusion, this study aims to contribute to the current organizational literature by deepening our understanding of how mindfulness can alleviate stress and anxiety in the workplace.

Keyword; Emotional Exhaustion, E-work stress, Health Enhancement Program (HEP), Job satisfaction, Mindfulness, Mindfulness-Based Stress Reduction, Randomized Controlled Trial.

Mindfulness Meditation (MM)

Mindfulness is gaining widespread recognition and support globally to enhance the overall well-being of teachers and students (Greenberg & Harris, 2012; Mendelson et al., 2010; Black et al., 2009). Mindfulness therapies have primarily been employed within therapeutic contexts. Mindfulness meditation as a therapeutic intervention for those suffering from persistent pain was initially introduced by Jon Kabat-Zinn in 1982. This approach has gained widespread recognition and is commonly called MBSR. In recent years, Mindfulness-Based Interventions (MBIs) have been widely adopted and utilized within educational settings. Jennings and Greenberg (2009) suggest that mindfulness-based interventions (MBIs) facilitate the development of enhanced self-awareness among teachers, enabling them to more effectively recognize and manage their stress reactions, promoting emotion regulation.

Mindfulness-Based Stress Reduction

John Kabat-Zinn 1979 developed MBSR as a medical problem-solving psycho-educational approach (Kabat-Zinn, 1998). According to the Center for Mindfulness in Medicine, Health Care, and Society (2010), a total of over 18,000 psychiatric and other than medical patients have engaged in the

MBSR course at the University of Massachusetts. According to Bishop (2002), this approach assists clinical and non-clinical individuals in mitigating stress and managing their emotions. This course has no references to Buddhism or Buddhist phrases, although the mindfulness training in MBSR is based on Buddhist interpretations and concerns (Brantley, 2005; Kabat-Zinn, 1982).

The MBSR program has significantly impacted the development of various mindfulness-based courses for educational purposes. These courses adhere to a structured and standardized format, making them suitable for a diverse range of adult populations, as highlighted by Kabat-Zinn (2011). Moreover, these courses have received substantial research support, as evidenced by studies (Grossman et al., 2004; Chiesa & Serretti, 2009; Khoury et al., 2013; Hofmann et al., 2010). Furthermore, it was noted that there was a noticeable increase in the level of experiential and sensory self-attention, accompanied by a decrease in conceptual-linguistic self-reflection following participation in MBSR. While there are certain theoretical similarities between MBSR and MBCT, research has consistently shown that mindfulness-oriented interventions are effective in improving self-compassion and mindfulness (Baer et al., 2012; Carmody et al., 2008; Holzel et al., 2011; Keng et al., 2012; Robins et al., 2012; Shapiro et al., 2007; van der Velden et al., 2015). MBSR program has been observed to have a notable positive impact on self-compassion.

MBSR among Teachers

Researchers have modified the MBSR curriculum to make it easier to implement in the classroom and more accessible for instructors. According to Flook et al. (2013), the adapted curriculum, known as MBSR, included modifications to the length of the guided practices and activities and practices connected explicitly to schools.

According to the study, providing MBSR to teachers significantly decreased their feelings of stress, anxiety, and depression while raising their mindfulness and self-compassion levels. According to the findings, MBSR therapies may positively affect teachers' psychological functioning and well-being, enhancing job satisfaction (Bonde et al., 2022). Numerous research studies have concluded

that practicing mindfulness has long-lasting impacts, including high levels of job satisfaction (Dane, 2011). Agyapong et al. (2023) conducted investigated several psychological treatments for teachers' stress and burnout. The review found 16 different ways to deal with burnout and stress. Mindfulness-Based Interventions received the most encouragement and which can be used on its own or in conjunction with yoga or Cognitive Behavioral Therapy (CBT). Furthermore, other therapeutic approaches, such as Rational Emotive Behavioral Therapy (REBT) and Inquiry-Based Stress Reduction (IBSR), have demonstrated positive results, researchers suggest that their review highlights the significance of implementing appropriate school-based interventions in order to augment teachers' ability to effectively manage stress and promote their psychological well-being.

Theoretical Framework

Linking Mindfulness with Job Satisfaction in JD-R Model

The JD-R model, as Demerouti et al. (2001) proposed, illustrates the relationship between employee health impairment, such as burnout, and motivation, such as engagement. Two work characteristics influence these outcomes: job resources and job demands. In their fundamental work, Richter and Hacker (1998) proposed a classification scheme for resources, distinguishing between two main types: external resources, encompassing social and organizational factors, and internal resources, comprising cognitive attributes and patterns of activity. Personal resources explain the components of a person's character linked to their capacity for resilience and their perception of their ability to influence or manage their surroundings, particularly in challenging situations (Hobfoll et al., 2003). Positive self-evaluation and good functioning are supported by personal resources (Bakker & Demerouti, 2008; Youssef & Luthans, 2007). Based on the definition, mindfulness may be regarded as a personal resource. Considering all of the factors mentioned above, mindfulness has the potential to function as a personal resource within the framework of the (JD-R) paradigm. Consequently, including

mindfulness as a personal resource has yielded beneficial outcomes regarding work engagement.

Linking Mindfulness with E-stress in the JD-R Model

Demerouti et al. (2001) suggested that working environment possesses distinctive features that may be classified into two primary categories, known as work needs and resources. In accordance with this theoretical framework, employees' physical and mental well-being depends upon maintain an equilibrium between positive (i.e., resource) and negative (i.e., demand) aspects of their work environment. The advocates of this theory claim that high demands (technological complexities) and shortage of technical resources (techno resources) at work affect the process of health impairment and may result in e-work stress (Wang et al., 2020; Salanova et al., 2007; López-Araujo & Osca, 2008).

Linking Mindfulness with Emotional Exhaustion in the JD-R model

The JD-R paradigm argues that the working environment triggers two distinct psychological reactions: work engagement and burnout (Demerouti et al., 2001). Burnout is a syndrome characterized by work-related stress. Emotional exhaustion is a significant component of burnout since it is a symptomatic expression of burnout (Maslach & Leiter 2008; Bakker, 2009). Bakker et al. (2008), claimed work engagement as a state of job-related well-being characterized by pleasant emotions, motivation, and a sense of absorption in one's work. Based on the JD-R paradigm, job resources positively influence employee performance and well-being by enhancing engagement. Conversely, job demands harm performance and well-being, contributing to emotional exhaustion. According to the JD-R framework, the negative consequences of emotional exhaustion or stress arising from challenging job demands and it has detrimental effects on an individual's general well-being and health, ultimately resulting in job dissatisfaction (Schaufeli & Taris, 2005). According to the JD-R framework, the negative consequences of emotional exhaustion or stress resulting from challenging job demands have been seen to have detrimental effects on an individual's general well-being and health, ultimately

resulting decreased level of mindfulness (Schaufeli & Taris, 2005). Therefore, the JD-R model provides support for the notion that emotional exhaustion negatively influence mindfulness.

Mindfulness Interventions in JD-R Model

As earlier noted, mindfulness research is recently beginning to emerge in the academic field of industrial and organizational psychology. However, it has received much attention in clinical and personality psychology over the past three decades (Hülsheger et al., 2013). The application of mindfulness as a therapeutic approach is a common practice within psychology, often employed to mitigate symptoms associated with stress (Chiesa & Serretti, 2009). Mindfulness techniques have been developed to mitigate stress (Hyland, 2015; Dane & Brummel, 2013; Brown & Ryan, 2003; Chiesa & Serretti, 2009).

The primary factor contributing to employee burnout has been identified as workplace stress (Glomb et al., 2011). Emotional exhaustion is the negative manifestation of job-related well-being based on the JD-R paradigm (Schaufeli & Bakker, 2004). This study effectively integrated the study variables within the JD-R model, establishing a theoretical model encompassing the underlying mechanisms associated with the adverse impact of technological stress on mindfulness and job satisfaction. Consequently, it is anticipated that increase level of mindfulness and job satisfaction will lead to decreased emotional exhaustion and e-work stress.

Conceptual Model

Current study used pre post research design to assess behavioral effects of mindfulness base stress reduction (MBSR) on e-work stress, mindfulness, job satisfaction and emotional exhaustion among university teachers. After screening, eligible participants were included for intervention. MBSR intervention group were assumed to have increased mindfulness and job satisfaction whereas decrease E-work stress and emotional exhaustion as compared with control group.

Figure 1. *This Flowchart Shows the Execution of Intervention*
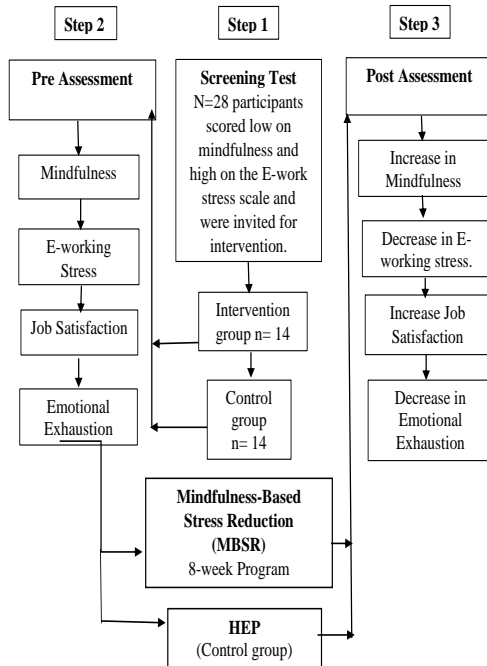
Hypotheses

- After post assessment Intervention group would have reduced e-work stress and emotional exhaustion as compared to the control group.
- After post assessment Intervention group would have enhanced mindfulness and job satisfaction compared to the control group.

Method

Research Design

This study was a randomized controlled trial (RCT) (pre-post research design) based on 8-week intervention plan. An RCT can establish the causal relationship between the intervention and the observed outcomes. Researchers can account for confounding variables and isolate the effects of the interventions under evaluation by randomly allocating participants to groups.

Participants

In the current study screening process was used to select the sample for study 3. Participants (university instructors) with high levels of e-stress and low levels of mindfulness participated.

According to standardized MBSR and HEP guidelines, a group should include 30-35 members. (N=45) responded and were approaches and screened to determine whether they met the inclusion criteria.

Inclusion criteria. University teachers with experience in e-work teaching mode were included for at least a semester. Teachers reporting low score on the mindfulness scale and high score on the e-stress scale were included. University teachers with at least two years of work experience will be selected.

Exclusion criteria. Following MBSR guidelines (Blacker et al., 2009), anyone receiving medication or counselling for mental health issues, addiction or other psychosis was excluded. The participants with previous experience with any mindfulness intervention or training were excluded.

During enrollment, five participants were excluded because three did not meet the eligibility requirements; however, two declined to participate because they could not follow the class schedule. Therefore, (*N*=40) participants were randomly assigned to either the intervention group or control group. Participants age range was age 29-55 (*M*=25.77, *SD*=15.18). There were Men were 40% and 60% were women. 47% teachers were married, 50% were single and only 2.5% were divorced. Most of teachers were M.Phil 50%, whereas, PhD teachers were 37% and 12% were Post Doc. According to their designation 27% were lecturers 67% were assistant professors and 5% were associate professors.

Instruments

Demographic Data Form. The demographic data form contains questions about the participant's age, gender, education, profession, marital and socioeconomic status, and previous meditation experience (if any).

E-work Stress Scale. The E-work Stress Scale is a 45-item self-report scale that assesses the level of e-work stress experienced by university instructors who teach in an online or e-mode. The replies range from (0=never, 1=rarely, 2=some of the time, 3=often, and 4=always) on a 5-point Likert scale for the items (see Annexure). In the scale, there are no reverse-coded items. It has four subscales:

teaching orientation, technology orientation, psychological and physical orientation, and work-life balance. Overall, EWWS reliability was 0.94, indicating that it was highly reliable.

Mindful Attention and Awareness Scale (MAAS).

The Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003) was developed with the objective of evaluating the degree of mindfulness in a wide range of individuals from the general population. The participants in this study were individuals who had participated in a range of mindfulness activities, but without any formal training in meditation. The MAAS is a state measure that comprises five questions and use a 6-point Likert-type scale, spanning from "almost always" to "almost never." Cronbach's alphas are often used to assess internal consistency, with typical values ranging from .80 to .90.

Teacher Satisfaction Scale (TSS) (Ho & Au, 2006).

This measure assesses the general level of satisfaction among instructors towards their job. The measurement instrument included of five questions that were evaluated using a Likert scale with five response options, ranging from 1 (disagreement) to 5 (strong agreement). According to the findings of Ho and Au (2006), the value of Cronbach's alpha was determined to be 0.77.

Emotional Exhaustion Scale.

The evaluation of emotional exhaustion was carried out using a scale developed by Maslach and Jackson (1981). The scale consists of nine question items. The first assessment included a Likert scale consisting of seven points, ranging from 1 (never) to 7 (very often). The reliability of the measure was deemed good, as shown by a reported Cronbach's alpha value of 0.89.

Description about MBSR

The Mindfulness-Based Stress Reduction (Kabat-Zinn, 1982) approach was first employed for managing different diseases, such as chronic pain and discomfort (Ledesma & Kumano, 2009). MBSR integrates metacognition, moving, quiet, sitting, and body scanning (e.g., walking meditation, yoga; Kabat-Zinn, 1990). MBSR is a group-based program that lasts 8-10 weekly sessions conducted by a certified mindfulness teacher. This approach consists of group work and individual assistance (for example, opportunities for responders to discuss their experiences with the facilitator and get adequate instruction, emotional support, and encouragement). Assignments for daily practice at home include structured and unstructured meditation exercises and practices.

Description About HEP

MacCoon et al. (2011) designed Health Enhancement Program (HEP) to develop an active control condition for the researches on mindfulness-based stress reduction (MBSR). Such control would be the same as MBSR but without the mindfulness element. By concentrating on four health domains that influence health and are treatments often used in integrative medicine, the program is intended to improve health and well-being. These consist of (1) Music therapy, (2) Nutrition, (3) Physical activity, such as stretching and walking, and (4) Functional movement. The program's format is very similar to that of the MBSR program: HEP may be done in groups of up to 24 individuals, once a week for 8 weeks, for 1.5 hours at a time. There is also an all-day class and practice sessions after the 6th session. Participants are instructed to select a daily practice time that worked best for them and to record what they practiced and for how long on a diary page. A typical class activity was a review of previously given assignments, a discussion of any issues students may have had, a presentation of new material, and a practical application of newly learned skills or procedures.

Psychotherapy research papers often display insufficient or neglected instructor expertise or qualifications descriptions. In this study, the researcher hired qualified instructors to enhance the objectivity and validity of the research approach. The sessions were directed and supervised by the researcher, while the instructors played a significant part in the design and execution of the intervention. The HEP instructors had extensive knowledge and proficiency in the field, commitment to the class sessions, and strategies contributing to its effectiveness. The first instructor has an MS in Health Psychology, prior experience working in a healthcare center, and can manage various aspects of Health Education Programs (HEP). The other instructor was a certified musician.

The Validation of Control Group Program with MBSR

MacCoon et al. (2012) suggested that to assess mindfulness as an active component, it is crucial to construct a control environment that properly prevents three prevalent limitations often identified in active controls used in behavioral intervention research. Researchers have found that researcher allegiance to a particular intervention significantly influences the differences observed between two interventions that are directly compared. This allegiance accounts for approximately 10% of the variability in treatment outcomes (Gaffan et al., 1995; Luborsky et al., 1999; Wampold, 2001) and up to 69% of the differences observed between interventions (Imel et al., 2008; Luborsky et al., 1999). Consequently, it has been suggested that researchers are encouraged to maintain a balancing allegiance when comparing two psychological interventions directly (Hollon, 1999). Furthermore, it is essential that both active and control treatments possess structural equivalence. The structural variables included in this study encompassed many key elements: the quantity and duration of therapy sessions, the therapist's level of expertise and credentials, the treatment modality (such as group or individual therapy), and the participants' capacity to articulate their unique concerns. If there are variations in treatments, it is possible that the differences noticed are a result of structural inequalities rather than the specific mechanism being studied. The elimination of structural variations between treatments and active controls might potentially mitigate the issue of variable effectiveness.

Ultimately, the active control group should include all nonspecific factors that have been found in Mindfulness-Based Stress Reduction (MBSR). Considering the above facts, the present research used a control condition that met the above criteria but did not include any mindfulness training. The Health Enhancement Program (HEP), as described by Maccoon et al. (2011), was used in order to accomplish these stated goals. Therefore, HEP (Health Enhancement Program) comprises distinct active components aimed at enhancing health and overall well-being, making it an active intervention. Additionally, it serves as a suitable active control for MBSR (Mindfulness-Based Stress Reduction) due to its alignment with MBSR on non-specific elements. However, it is important to note that HEP does not incorporate mindfulness as one of its specific ingredients.

Procedure

Teachers who reported higher levels of e-work stress and lower level of mindfulness were invited for participation. They performed baseline assessments on above mentioned scales before being notified of their assigned experimental condition. Afterwards participants were assigned randomly to either the Mindfulness-Based Stress Reduction (MBSR) intervention group (n=20) or the Health Enhancement Program (HEP) control group (n=20). Eighteen participants enrolled in the Mindfulness-Based Stress Reduction (MBSR) program however, two participants quit after a few sessions because of their workload. In the control group, nineteen participants were participated with only one individual withdraw from the program. Following the intervention, the final sample consisted of N=28 participants (see fig.1)

Before starting the intervention participant's informed consent was taken. The researcher explained the aim of the study and their willingness to take part in the study for eight weeks. Moreover, it was ensured that their data would be kept confidential, and if they quit the study anytime their personal data will be discarded. Intervention group n=14 was divided into small groups of teachers (4-5 participants in each group). Mindfulness training was followed by the standards of mindfulness-based stress reduction set-up (Kabat-Zinn, 2003; Center for Mindfulness 2019) and was delivered by a researcher who had taken training (online MBSR summer course 2020) from the Center of Mindfulness (USA). Although the standard format has the most empirical evidence supporting its effectiveness, adaptation to the program that involves fewer in-class hours may increase treatment uptake and completion for those with busy schedules or severe illness (Fjorback et al., 2011; Grégoire & Lachance, 2014; Klatt et al., 2009; Shapiro et al., 2003; Speca et al., 2000) therefore according to busy schedule of university teacher class hours were scheduled according to their convince. Participants in the control group were treated with HEP. The researcher supervised and guided

instructors to meet the research objectives, but both instructors implemented the intervention and corresponded with each other in managing class timing and schedule. According to the schedule, (n=14) control group participants meet in small groups almost (3-4 participants) in a group.

They were guided to meditate afterwards to cope with stress and for better mental health in the future. Lastly, the researcher appreciated cooperating until the intervention's end. The following table demonstrates the schedule of the intervention plan. Participants randomized to the intervention completed the 8-week mindfulness training from October to December of 2021.
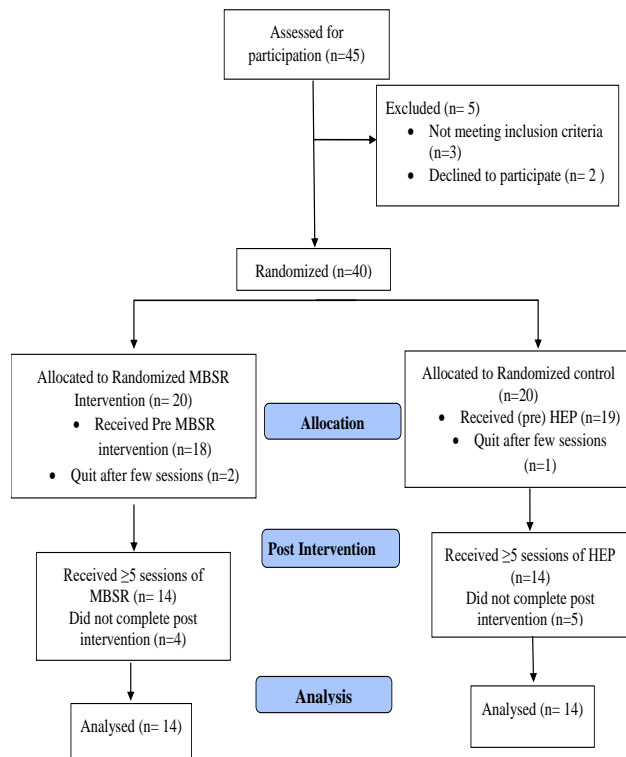**Figure 2**.

A CONSORT flow diagram

Table 1

Descriptive Statistics of Sociodemographic Characteristics of Study Sample (N=28).

Baseline Characteristics	Control group		Intervention group		Full sample	
	n	%	*n*	%	*n*	%
Gender						
Male	5	35.7	3	21.4	8	28.6
Female	9	64.3	11	78.6	20	71.4
Marital Status						
Married	7	50	6	42.9	13	46.4
Single	6	32.9	8	57.1	14	50.0
Divorce	1	7.1	-		1	3.6
Education						
Ms/M.phil	9	66.3	11	78.6	194	55.4
PhD	5	35.7	3	21.4	153	43.7
Faculty						
Social Sciences	12	85.7	12	85.7	24	85.7
Natural Sciences	2	14.3	2	14.3	4	14.3
University Type						
Private	8	57.1	5	35.7	11	39.3
Public	6	82.9	9	64.5	17	60.7
Age Category						
Young Adulthood	11	78.6	7	50	18	64.3
Middle Adulthood	3	21.4	7	50	10	35.7

Note. *Note. N* = 28 (*n* = 14 for each condition). Participants were, on average, 34.9 years old (SD= 6.43), and participant age did not differ by condition.

Table 2

Table 2 Displays Format and Description of the MBSR Program

No of weeks and classes	Format	Description
Class 1	Introduction about MBSR (20 min) Breathing awareness (15 min) Body scan (30 min) Group discussion (25 min)	In this 1.5-hour session, the participants received instruction in both formal and informal ways of mindfulness and an introduction and explanation of the MBSR program from an educational and experiential perspective. They were taught initial meditation, breathing awareness, and body scan methods. Participants discussed their experiences and challenges while meditating in a group discussion that concluded the session. Practice with the body scanner was assigned as homework.
Class 2	Educating the importance of "Being in a present moment" (15 min) Sitting mediation (15 min) Body scan (20 min) 9-Dots Puzzle activity (15 min) Lecture delivered on "The role of perception and conditioning in the appraisal and assessment of stress". (15 min) Group discussion (15 min)	Class 2 emphasized the value of living in the present moment without getting caught up in past or future memories and practising sitting meditation with a body scan. 9-Dots The purpose of the puzzle exercise was to broaden the participant's awareness while confronting known and unfamiliar problems and situations. It was highlighted how perception and training play a part in how stress is perceived and evaluated. The topic of the group conversation was stress and meditation. Practice body scan exercises and mindfulness during everyday tasks at home, such as brushing teeth, cleaning dishes, showering, putting out the trash, and shopping.
Class 3	Addressed the notion that "thoughts are only mental events". (15 min) Recalled, "how the body reacts to stress". (15 min)	The session focused on the idea that ideas are only mental happenings, and participants were urged to observe and explore them without responding to

	Sitting meditation with awareness of breathing (20 min) Walking meditation (20 min) Group discussion (20 min)	them. In this session, the body's response to stress was reviewed, and sitting meditation with mindfulness of breathing and walking meditation was introduced. The value of being embodied and mindfulness in daily tasks was discussed in the group while individuals shared their own experiences of feeling embodied. Fill out the Pleasant Events Calendar for the week, one item per day, as part of homework at home.			centred on the practice of sitting meditation and yoga. Examine what it was like to work with bodily sensations. Get conscious of weekly automatic stress responses, behaviours, and sitting meditation practice in preparation for homework at home.
Class 4	Introduction about "accepting and opened attitude toward self and others through the practice of kindness". (15 min) Mindful hatha yoga (20 min) Loving-Kindness meditation (15 min) Body scan (20 min) Group discussion (20 min)	In class 4, participants were introduced to cultivating and developing a more accepting and receptive attitude toward themselves and others through the practice of kindness. The body scan, loving-kindness meditation, and mindful hatha yoga are all forms of meditation. The group discussion	Class 5	Emphasized, "how a person experiences a certain event, and ability to observe thoughts and feelings without attempting to change them". (20 min) Body scan (20 min) Mindful hatha yoga (20 min) Loving-Kindness Meditation (15 min) Group discussion (20 min)	The fifth session addressed the idea that one may observe thoughts and feelings without trying to change them. How someone views a particular situation might be linked to their thoughts and emotions. It emphasizes people's capacity to react to issues and stresses more swiftly and expertly daily. Participants gained knowledge on how to broaden their awareness in order to alter routines that cause stress. The group practised mindful hatha yoga, loving-

	kindness meditation, and body scanning. The group discussed the value of paying attention when speaking and listening. Practice standing yoga poses and sitting meditation at home. Alternate between a body scan or sitting meditation, standing yoga, and yoga while lying down.			previously learned mindfulness/MBSR skills and communication methods. During meditation, yoga was performed both while standing and while lying down. Participants in the group expressed difficulty in communicating. Home practice included sitting meditation CDs that included a body scan.
Class 6	Focused on the "capacity to self-regulate and cope more effectively with stress". (20 min) Explore "stressful communications". (20 min) Standing yoga (15 min) Lying down yoga (15 min) Group discussion (20 min)	This class aimed to improve pupils' emerging self-control and stress management capacity. Participants examine how stress affects communication, emphasizing stressful conversations, recognizing one's sentiments, expressing them appropriately, raising awareness of interpersonal communication patterns, and overcoming barriers to doing so. The major objective of this strategy-building session is to use	All-day class (Retreat)	Cultivated "a sense of presence from moment to moment, and being open to any experience". (20min) Yoga (20 min) Sitting Meditation(20 min) Body Scan (20 min) Break (20 min) Walking meditation (15 min) Mountain or lake meditation (20 min) Eating meditation (informal, at lunch) (15min)	The purpose of the rigorous nature of the session, which lasted approximately 5 hours, was to aid participants in comfortably and effectively establishing the use of mindfulness across a variety of settings while also preparing them to employ these approaches well beyond the completion of the program that they were participating. The participants gradually increased the duration of

	Loving-Kindness Meditation (20 min) Group discussion (20 min) Break (20 min) Breathing practice (25 min) Mindful hatha yoga (25 min) Mindful talking (20 min) Sitting meditation with a closing circle (20 min)	meditation they performed throughout the day. With the option to communicate mindfully, one could encourage or inspire others. The participant experienced seated meditation with a closing circle. Discussion within the group on those participants who struggled to talk about their experiences to make them feel supported.			The group discussed and analyzed the All Day Class (retreat) in depth. Sitting, yoga, walking, and body scans should be practised daily as part of home practice.
Class 7	Highlighted the "importance of integrating mindfulness practice in daily life". (15 min) The Wheel of Awareness activity (40 min) Yoga (20 min) Group discussion (15 min)	The need to incorporate fuller and more personal aspects of mindfulness practice into one's everyday life was underlined in Class 7. The purpose of the activity, known as the Wheel of, awareness was to investigate the mental processes of the participants. This activity encourages participants to reflect on their lives and become more self-aware. There was some practice of yoga.	Class 8	A review of the program (20 min) Body scan (20 min) Yoga (15 min) Sitting meditation (20 min) Question & answer session (25 min) Group discussion (20 min)	Finally, session 8 lasted around 2 hours and highlighted a program review, focusing on everyday practices for retaining and refining the abilities learned throughout the program. The continuation of mindfulness exercises included body scans, yoga, and seated meditation. Participants in this last session had inquiries regarding the daily uses of mindfulness techniques. Participants offered input on the program in a group discussion, and this session included a post-assessment.

Table 3

Table 3 Shows Format and Description of HEP

No of weeks and classes	Format	Description
Class 1	Introduce the facilitator & Welcome (20 min) Functional movement (25 min) Physical activity (30 min) Group discussion (15 min)	In the 1.5-hour HEP session, participants learned about the program, obstacles or hurdles that may arise while attempting to better one's life were highlighted, and this course offers a chance to achieve so in a supportive environment. The concept of functional movement was established; posture and alignment are crucial for achieving optimum function and reaping its advantages. A stick was used to practice posture. The focus of the initial lesson on healthy living was physical activity. While jogging or walking, pay attention to how the body is responding. Participants in a group discussion were invited to share their drawings, images, and emotions.
Class 2	Physical activity (30 min) Functional movement (20 min) Music Therapy (30 min) Group discussion (15 min)	Different physical exercises, such as calves, hug knees, and prone quad, were practised in class two. Stretching and frequent walking were used for exercise. Discussion topics included difficulties or possible barriers to completing schoolwork, questions regarding its relevance to health and well-being, Etc. Participants in music therapy discussed their own experiences while also being exposed to supportive music and imagery (SMI).
Class 3	Nutrition Lecture. (30 min) Music therapy (40 min) Group discussion (20 min)	This class addressed nutrition lectures and subjects, such as what constitutes a healthy diet. Dietary recommendations are introduced, with the motto "Feel better today and stay healthy for tomorrow." The participants could recognize the Dietary Guidelines' main concepts at the class's end. Music therapy stimulated and maintained a

		dynamic unfolding of inner experiences that provided numerous opportunities for wholeness.			homework assignments or possible roadblocks, as well as reservations over their usefulness to health and well-being, among other topics. Physical exercise and functional movement have been chosen for at-home practice.
Class 4	Nutrition guidelines (30 min) Functional movement (30 min) Group discussion (20 min)	In particular, class 4 concentrated on fine-tuning the pyramid to fulfil the objectives of the dietary guidelines, including enough nutrients within calorie demands, weight control, carbs, salt, and potassium. The tendency for the functional movement was enhanced. As a homework project, pupils had to evaluate a normal day's worth of food using "My Pyramid Tracker" to see how well the diet adhered to the guidelines.	Class 6	Functional movement (20 min) Physical activity (25 min) Music Therapy (30 min) Group discussion (20 min)	The purpose of this session was to prepare participants for simple adjustment and maintenance of a healthy lifestyle using planned exercise such as functional movement and physical activity. Music therapy focuses on the benefits of uplifting music and images. The next all-day session was the topic of group discussion. Eating while tracking was a part of the home practice.
Class 5	Functional movement (25 min) Physical activity (25 min) Music Therapy (25 min) Group discussion (20 min)	In class 5, functional movement and physical activity were carried out. Participants then concentrated on music therapy, utilizing drumming and music as an emotional release and discovering their songs. The topic of discussion among the group was difficulties in completing	All-day class (Retreat)	Music Therapy (40 min) Functional movement (30 min) Nutrition Guidelines (30 min)	The intensive nature of the almost 5-hour session was intended to assist participants in firmly and effectively establishing functional movement while

Preparing a Meal (30 min)
Lunch Break (20 min)
Walking Activity (40 min)
Physical activity (40 min)
Group Meal Preparation (60 min)

simultaneously preparing them to utilize these guidelines far beyond the program's conclusion. Participants gradually practised all physical activities around the day. They cooked a meal that allowed them to collaborate and work as a team to accomplish their objective. They were aware of healthy eating recommendations when preparing food. Participants in group discussions feel encouraged and open up about their experiences.

Class 7

Nutrition Guidelines (30 min)
Physical activity (25 min)
Music Therapy (30 min)
Group discussion (20 min)

The value of a balanced diet in daily life was discussed in this session. Participants performed the physical exercises as planned. For this session, the group was instructed to compose a song while creating lyrics. After then, the group was split into three smaller groups. In order to play their song for the group, every

member of the group was requested to write their lyrics based on their experiences with stress. Previous homework assignments and the retreat's "The All Day Class" were examined and discussed in groups.

Class 8

A review of the program (20 min)
Music Therapy (20 min)
Functional movement (20 min)
Physical activity (20 min)
Question & answer session and group discussion (45 min)

Finally, class 8 lasted for around two hours and included a review of the program with a focus on the daily activities that participants should incorporate into their lifestyles for a healthy lifestyle. During the final session, participants asked how to live a healthy lifestyle. Participants in a group discussion about the program discussed the difficulties they were having continuing with implementing what they had learned into practice. This session also included a post-assessment.

Data Analysis

All analyses will be conducted using SPSS Version 24.0. Study will include only participants

who will complete the pre assessment and post assessment study. Descriptive statistics will be used to summarize baseline sample characteristics. Pearson correlation was used to determine redundancy among variable at baseline. In order to compare groups, i.e., intervention and control group difference at pre- post level independent sample t-test, correlation and cluster bar were used. Materials and analysis for this study are available by emailing the corresponding author.

Ethical Approval

The study was carried out per the ethical principles of the American Psychological Association (APA, 2013). The Departmental Doctoral Program Committee (DDPC), and the University's Advanced Studies Review Board (ASRB) all gave their approval before the study could be carried out. The data were legitimately evaluated, and the findings were given without any manipulation. A participant's informed consent was obtained before the initial phase of the intervention. The researcher briefed them about the purpose of the study and asked whether they were prepared to take part in it for eight weeks. In addition, it was ensured that their information would be kept private, and they were free to discontinue their participation in the research at any time

Results

Table 4

Inter-Correlation of Outcome Measure at Baseline (N=28)

|	Variables	*M*	*SD*	1	2	3	4
1.	E-work Stress Scale	127.53	16.66	-			
2.	Mindfulness Scale	50.25	19.09	-.16	-		
3.	Job Satisfaction Scale	18.17	4.93	-.25	.69**	-	
4.	Emotional Exhaustion Scale	27.53	10.41	.01	-.42*	-	-.38*

Table 5

Independent Sample t- test Displays Pre and Post Assessment in Group (Intervention and Control Groups) Differences among E-work Stress, Mindfulness, Job satisfaction and Emotional Exhaustion (N=28)

Note. Cohen's d= Effect size

Variables	Intervention group (n=14)		Control group (n=14)		t (26)	p	Cohen's d
	M	*SD*	*M*	*SD*			
E-work stress							
Pre Intervention	124.78	19.33	130.28	18.26	-.77	.44	0.29
Post Intervention	65.57	20.33	99.71	7.11	-5.93	.00	2.25
Mindfulness							
Pre Intervention	50.50	18.36	50.00	20.49	.06	.94	0.02
Post Intervention	78.92	4.53	55.57	11.31	5.58	.00	2.71
Job Satisfaction				5.76	1.03	.31	0.44
Pre Intervention	19.14	3.91	17.21	2.92	1.11	.00	2.65
Post Intervention	19.78	2.99	11.92				
Emotional Exhaustion							
Pre Intervention	29.78	7.93	25.28	12.30	1.15	.26	0.43
Post Intervention	17.28	7.36	31.35	7.45	2.80	.00	0.70

Independent sample t-test showed that both intervention and control groups did not show any significant difference in pre-assessment. However, there were significant improvements in the intervention group at post-intervention assessment. Participants in the intervention group had reduced e-work stress (*M*=65.57, *SD*= 20.33) compared to control group (*M*=99.71, *SD*= 7.11) similarly emotional exhaustion was lower in intervention group (*M*=17.28, *SD*= 7.36) as compared to control group (*M*=31.35, *SD*= 7.45). In contrast it has been observed that at post assessment mindfulness was enhanced in intervention group (*M*= 78.92, *SD*= 4.53) as compared to control group (*M*=55.57, *SD*= 11.31) similarly job satisfaction was improved in intervention group (*M*=19.78, *SD*= 2.99) as compared to control group (*M*=11.92, *SD*= 2.92)

Figure 2
Clustered Bar Mean for Pre and Post Assessment of Intervention and Control Group on Different Scales
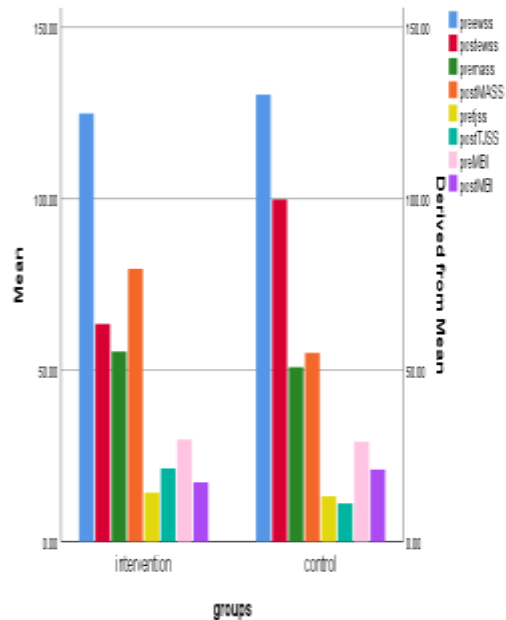
Note. Framing pre and post assessments of intervention and control group is compared. Y-axis shows means scores, pre and post assessment score of e-work stress, pre and post mindfulness scale, pre and post job satisfaction scale and pre and post emotional exhaustion is shown.

Discussion

It was the main study of the research project. An intervention-based study investigated the effect of Mindfulness-Based Stress Reduction (MBSR) intervention on E-work stress, mindfulness, job satisfaction, and emotional exhaustion among university teachers (N=28). The study implemented a randomized controlled trial (RCT) design to compare the intervention and control groups. The intervention group received Mindfulness-Based Stress Reduction (MBSR), whereas the control groups were allocated a Health Enhancement Program (HEP) to assess the efficacy of MBSR on the intervention group.

The present study postulated that there would be a significant difference in the pre and post-assessments between the intervention and control groups. Specifically, it was anticipated that the intervention group would exhibit a decrease in e-work stress and emotional exhaustion compared to the control group. An independent sample t-test found no significant difference between the intervention and control groups in pre-assessment. However, during the post-intervention evaluation, there were substantial improvements in the intervention group. The participants in the intervention group exhibited a decrease in e-work stress (M=65.57, SD=20.33) compared to the control group (M=99.71, SD=7.11). Employees may have particular difficulties and anxieties due to the prevalence of remote work and digital communication technologies, which can be reduced by practicing mindfulness (Han et al., 2021). Research on interventions offers empirical evidence that enhancing mindfulness could produce advantageous outcomes in performance and well-being. Empirical research has demonstrated that individuals who engage in mindfulness-based treatments (MBIs) report a decrease in their subjective perception of stress after post-assessment (Balconi et al., 2019; Colgan et al., 2019).

Research on the effects of mindfulness practices like MBSR meditation in the workplace, especially online settings, has shown that it can help alleviate e-stress. The research found that mindfulness can increase employees' well-being, reduce stress, and improve their overall work experience, which is especially important for employees who work from home (Glomb et al., 2011). Li and Huang (2017) investigate the relationship between mindfulness and social media weariness, which may be relevant to individuals who spend significant time online. The results indicate that engaging in mindfulness practices may reduce stress and fatigue associated with social media use, and this effect may also extend to the stress experienced in digital workplaces. Another investigation examines the interactive association between mindfulness and job engagement, particularly relevant for remote work individuals. The study conducted by Yeo and Neal (2017) explores the potential impact of mindfulness on employees' involvement in e-work activities and their overall satisfaction with their job. The findings of a separate study offer compelling evidence that mindfulness

training programs can effectively decrease acute stress experienced in the workplace. These results indicate that more extensive mindfulness training durations, such as six weeks, may be required to achieve positive outcomes regarding overall well-being in the workplace (Brian et al., 2019).

Additionally, the results of the present study indicate that the intervention group had lower scores in emotional exhaustion during the post-assessment phase (M=17.28, SD=7.36) compared to the control group (M=31.35, SD=7.45). Emotional exhaustion is commonly conceptualized as a cognitive phenomenon wherein individuals perceive their inability to effectively deal with the demands and stressors encountered in their professional environment (Baker & Berenbaum, 2011). Mindfulness techniques are increasingly being researched and used to treat exhaustion and burnout in various groups, including healthcare professionals, educators, and individuals working in high-stress workplaces. Hence, a research investigation was conducted to explore the indirect association between mindfulness and emotional exhaustion, mediated by psychological distress, while also considering the moderating influence of workplace bullying. When bullying at work was low to moderate, those practicing mindfulness reported much less psychological distress and emotional exhaustion (Bayighomog et al., 2023).

A investigated the impact of mindfulness on emotion regulation, emotional exhaustion, and job satisfaction within the healthcare sector. According to Hülsheger et al. (2013), the results indicate a positive correlation between elevated levels of mindfulness and a decrease in emotional exhaustion, as well as an improvement in job satisfaction. In addition to increases for the intervention group, the control group had losses that contributed to most of the interaction effects on mindfulness. In light of previous research conducted by von der Embse and Mankin (2020), it has been seen that teachers experience heightened levels of distress as the academic year progresses. A meta-analysis is a research method that investigates the impacts of mindfulness meditation in diverse areas. Recently, the relationship between mindfulness and emotional intelligence among healthcare professionals was studied, and the researchers concluded that there was a positive relationship between mindfulness and emotional intelligence, particularly the capacity to regulate emotions; however, mindfulness was negatively related to emotional exhaustion (Nerea et al., 2021). According to Skinner and Beers (2016), using MBIs can empower instructors to use adaptable ways to manage and overcome stressful situations effectively.

The current findings also demonstrated that at the post-test, mindfulness was higher in the intervention group (M=78.92, SD=4.53) than in the control group (M=55.57, SD= 11.31). In the past few years, research has shown that mindfulness treatments can improve teachers' emotional and physical health. Similarly, mindfulness practices assist individuals to become more open and accepting of their thoughts and feelings. These aspects of mindfulness have been shown to help people with depression and anxiety (Evans et al., 2008; Flaxman et al., 2013; Strauss et al., 2014; Eisendrath et al., 2016). The efficacy and underlying mechanisms of mindfulness training for teachers in Hong Kong were investigated using randomized controlled trial research. The researchers discovered that educators who participated in the 8-week mindfulness program had notably elevated levels of life satisfaction, positive emotions, and overall health.

Additionally, they reported reduced sleeplessness, stress, and negative emotions compared to the control group immediately after the training. According to Kitty (2021), there is a positive association between enhanced well-being and increased levels of mindfulness in teaching. Many randomized controlled trials (RCTs) have demonstrated that participation in Mindfulness-Based Stress Reduction (MBSR) programs leads to significantly more significant improvements in standardized measures of mindfulness when compared to control conditions (Anderson et al., 2007; Branstrom et al., 2010; Schmidt et al., 2011; Shapiro et al., 2008). The study conducted by Klingbeil and Renshaw (2018) involved a meta-analysis that examined the effectiveness of teacher mindfulness-based treatments. The findings of this research provided significant insights into the impact of these interventions on teachers' competence, occupational health, and overall well-being.

Furthermore, according to Rupprecht et al. (2018), teacher mindfulness-based interventions are likely to positively affect teachers' perceptions of their ability to cope with students and manage the classroom efficiently. Mindfulness-based therapies have also demonstrated beneficial results for individual well-being within work settings. The findings of this study indicate that, according to the t-test analysis, job satisfaction was significantly greater in the intervention group (M=19.78, SD=2.99) compared to the control group (M=11.92, SD=2.92) in the post-assessment stage. Yizhen et al. (2021) researched to investigate the influence of mindfulness on work outcomes. The findings revealed a positive correlation between mindfulness and its progressive development.

Furthermore, the study identified indirect effects of time on emotional tiredness, work engagement, and job satisfaction, which were mediated by mindfulness intervention. The relationship between mindfulness and job satisfaction may also be elucidated through interpersonal relationships. According to Raza et al. (2018), trait mindfulness is associated with higher levels of job satisfaction and improved work-family balance. Those with high levels of mindfulness can control their moods and emotions, which results in greater job satisfaction at work, which may be explained by emotional regulation as an antecedent to job satisfaction (Forjan et al., 2019). As mentioned earlier, these researches provide light on the possible advantages of mindfulness treatment strategies in enhancing job satisfaction and general well-being within the workplace. Mindfulness techniques can improve employees' job experiences by promoting increased awareness, emotional control, and stress reduction.

Practical Implications

The study also has important implications for practice. Considering how the study's findings could be applied to real-life situations is essential. Mindfulness therapies have demonstrated encouraging outcomes in both clinical and general populations. The therapies above and programs facilitate the cultivation of an effective self-attitude and the implementation of adaptive habits and skills for managing one's emotions during adversity (Neff & Germer, 2012; Gilbert & Procter, 2006). The goal should be to support academics in overcoming their physical and mental pressures through these intervention programs, which are based on a foundation of encouraging, empowering, and supporting individuals. Mindfulness is a valuable tool for facilitating teachers' professional and personal development.

Future Suggestions and Recommendations

Several suggestions could be undertaken for future research. The existing literature on mindfulness shows that exercise regarding mindfulness in the workplace provides beneficial results. There are a few suggestions for university administration that they should add some recruitment tests to check the applicant's ability of mindfulness. Moreover, it is essential to train newly hired staff to strengthen their ability to concentrate on their task and cultivate mindfulness. In order to cultivate mindfulness within the academic setting, educational psychologists and counselors should explore incorporating mindfulness practices as part of an employee development program. This integration has the potential to provide optimal outcomes for students. Furthermore, it is recommended that educational institutions implement mindful activities or programs inside the workplace in order to enhance employees' mindfulness capabilities during work hours. It is a fundamental benefit for universities to incorporate mindfulness classes into their curriculum to enhance productivity across all levels.

Authors

1.   **Fatima Javaid**

Ph.D scholar, Department of Applied Psychology, Lahore College for Women University Lahore. *Correspondence concerning this article should be* ORCID #. 0000-0002-8791-1426

2.   **Dr. Subha Malik**

Assistant Professor, Department of Applied Psychology, Govt Gulberg College for Women, Lahore. ORCID #. 0000-0003-0646-4597

3.   **Dr. Umm E Rubab Kazmi**

Assistant Professor, Department of Applied Psychology, Lahore College for Women University, Lahore, Pakistan. ORCID #. 0000-0002-2249-1977

References

1. Agyapong, B., Brett-MacLean, P., Burback, L., Agyapong, V. I. O., & Wei, Y. (2023, April 24). Interventions to reduce stress and burnout among teachers: A scoping review. *International Journal of Environmental Research and Public Health*, *20*(9), 5625. https://doi.org/10.3390/ijerph20095625, PubMed: 37174145, PubMed Central: PMC10178023

2. Anderson, N. D., Lau, M. A., Segal, Z. V., & Bishop, S. R. (2007). Mindfulness-based stress reduction and attentional control. *Clinical Psychology and Psychotherapy*, *14*(6), 449–463. https://doi.org/10.1002/cpp.544

3. Baer, R. A., Lykins, E. L. B., & Peters, J. R. (2012). Mindfulness and self-compassion as predictors of psychological wellbeing in long-term meditators and matched nonmeditators. *Journal of Positive Psychology*, *7*(3), 230–238. https://doi.org/10.1080/17439760.2012.674548

4. Baker, J. P., & Berenbaum, H. (2011). Dyadic moderators of the effectiveness of problem-focused and emotional-approach coping interventions. *Cognitive Therapy and Research*, *35*(6), 550–559. https://doi.org/10.1007/s10608-011-9386-7

5. Bakker, A. B. (2009). Building engagement in the workplace. In R. J. Burke & C. L. Cooper (Eds.). *The Peak Performing Organization* (pp. 50–72). Routledge. https://doi.org/10.4324/9780203971611.ch3

6. Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International*, *13*(3), 209–223. https://doi.org/10.1108/13620430810870476

7. Balconi, M., Fronda, G., & Crivelli, D. (2019). Effects of technology-mediated mindfulness practice on stress: Psychophysiological and self-report measures. *Stress*, *22*(2), 200–209. https://doi.org/10.1080/10253890.2018.1531845

8. Bayighomog, S. W., Ogunmokun, O. A., Ikhide, J. E., Tanova, C., & Anasori, E. (2023). How and when mindfulness inhibits emotional exhaustion: A moderated mediation model. *Current Psychology*, *42*(11), 9080–9094. https://doi.org/10.1007/s12144-021-02193-6

9. Bishop, S. R. (2002). What do we really know about mindfulness-based stress reduction? *Psychosomatic Medicine*, *64*(1), 71–83. https://doi.org/10.1097/00006842-200201000-00010

10. Black, D. S., Milam, J., & Sussman, S. (2009). Sitting-meditation interventions among youth: A review of treatment efficacy. *Pediatrics*, *124*(3), e532–e541. https://doi.org/10.1542/peds.2008-3434

11. Bonde, E. H., Fjorback, L. O., Frydenberg, M., & Juul, L. (2022). The effectiveness of mindfulness-based stress reduction for school teachers: A cluster-randomized controlled trial. *European Journal of Public Health*, *32*(2), 246–253. https://doi.org/10.1093/eurpub/ckab223

12. Bränström, R., Kvillemo, P., Brandberg, Y., & Moskowitz, J. T. (2010). Self-report mindfulness as a mediator of psychological well-being in a stress reduction intervention for cancer patients – A randomized study. *Annals of Behavioral Medicine*, *39*(2), 151–161. https://doi.org/10.1007/s12160-010-9168-6

13. Brantley, J. (2005). Mindfulness-based stress reduction. In *Acceptance and mindfulness based approaches to anxiety* (pp. 131–145). https://doi.org/10.1007/0-387-25989-9_5

14. Chin, B., Slutsky, J., Raye, J., & Creswell, J. D. (2019) Mindfulness Training Reduces Stress At Work: A Randomized Controlled Trial. *Mindfulness*. John, 10(4), 627–638. https://doi.org/10.1007/S12671-018-1022-0

15. Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal*

of Personality and Social Psychology, *84*(4), 822–848. https://doi.org/10.1037/0022-3514.84.4.822

16. Carmody, J., Reed, G., Kristeller, J., & Merriam, P. (2008). Mindfulness, spirituality, and health-related symptoms. *Journal of Psychosomatic Research*, *64*(4), 393–403. http://doi.org/10.1016/j.jpsychores.2007.06.015

17. Center for Mindfulness in Medicine, Health Care, and Society, & University of Massachusetts Medical School. (2010). *Stress reduction program*. Available at http://www.umassmed.edu/Content.aspx?id=41254&LinkIdentifier=id. Retrieved on December 30, 2010.

18. Chiesa, A., & Serretti, A. (2009). Mindfulness-based stress reduction for stress management in healthy people: A review and meta-analysis. *Journal of Alternative and Complementary Medicine*, *15*(5), 593–600. https://doi.org/10.1089/acm.2008.0495

19. Chiesa, A., & Serretti, A. (2009). Mindfulness-based stress reduction management in healthy people: A review and meta-analysis. *Journal of Alternative and Complementary Medicine*, *15*(5), 593–600. https://doi.org/10.1089/acm.2008.0495

20. Colgan, D. D., Klee, D., Memmott, T., Proulx, J., & Oken, B. (2019). Perceived stress mediates the relationship between mindfulness and negative affect variability: A randomized controlled trial among middle-aged to older adults. *Stress and Health*, *35*(1), 89–97. https://doi.org/10.1002/smi.2845

21. Dane, E., & Brummel, B. J. (2014). Examining workplace mindfulness and its relations to job performance and turnover intention. *Human Relations*, *67*(1), 105–128. https://doi.org/10.1177/0018726713487753

22. Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of Burnout. *Journal of Applied Psychology*, *86*(3), 499–512. https://doi.org/10.1037/0021-9010.86.3.499

23. Eisendrath, S. J., Gillung, E., Delucchi, K. L., Segal, Z. V., Nelson, J. C., McInnes, L. A., Mathalon, D. H., & Feldman, M. D. (2016). A randomized controlled trial of mindfulnessbased cognitive therapy for treatment-resistant depression. *Psychotherapy and Psychosomatics*, *85*(2), 99–110. https://doi.org/10.1159/000442260

24. Evans, S., Ferrando, S., Findler, M., Stowell, C., Smart, C., & Haglin, D. (2008). Mindfulness-based cognitive therapy for generalized anxiety disorder. *Journal of Anxiety Disorders*, *22*(4), 716–721. https://doi.org/10.1016/j.janxdis.2007.07.005

25. Fjorback, L. O., Arendt, M., Ornbøl, E., Fink, P., & Walach, H. (2011). Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy – A systematic review of randomized controlled trials. *Acta Psychiatrica Scandinavica*, *124*(2), 102–119. https://doi.org/10.1111/j.1600-0447.2011.01704.x

26. Flaxman, P. E., Bond, F. W., & Livheim, F. (2013). *The mindful and effective employee: An acceptance and commitment therapy training manual for improving well-being and performance*. New Harbinger Publications.

27. Flook, L., Goldberg, S. B., Pinger, L., Bonus, K., & Davidson, R. J. (2013). Mindfulness for teachers: A pilot study to assess effects on stress, burnout, and teaching efficacy. *Mind, Brain and Education*, *7*(3), 182–195. https://doi.org/10.1111/mbe.12026

28. Frontiers in Psychology, 12:615137-615137, Forjan, D. N., Tuckey, M. R., & Li, Y. (2019). Problem solving and affect as mechanisms linking daily mindfulness to task performance and job satisfaction. *Stress and Health*, *36*, 338–349, doi: 10.1002/smi.2931. https://doi.org/10.3389/FPSYG.2021.615137

29. Gaffan, E. A., Tsaousis, J., & Kemp-Wheeler, S. M. (1995). Researcher allegiance and meta-analysis: The case of cognitive therapy for depression. *Journal of*

Consulting and Clinical Psychology, *63*(6), 966.e980.

30. Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. *Clinical Psychology and Psychotherapy*, *13*(6), 353–379. https://doi.org/10.1002/cpp.507

31. Glomb, T. M., Duffy, M. K., Bono, J. E., & Yang, T. (2011). Mindfulness at work. *Research in Personnel and Human Resources Management*, *30*, (115–157). https://doi.org/10.1108/S0742-7301(2011)0000030005: House, H., & Wagon, L. (2011). *1WA*, *16*. GBR. Emerald Group Publishing Ltd.

32. Greenberg, M. T., & Harris, A. R. (2012). Nurturing mindfulness in children and youth: Current state of research. *Child Development Perspectives*, *6*(2), 161–166. https://doi.org/10.1111/j.1750-8606.2011.00215.x

33. Grégoire, S., & Lachance, L. (2015). Evaluation of a brief mindfulness-based intervention to reduce psychological distress in the workplace. *Mindfulness*, *6*(4), 836–847. https://doi.org/10.1007/s12671-014-0328-9

34. Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, *57*(1), 35–43. https://doi.org/10.1016/S0022-3999(03)00573-7

35. Ho, C. L., & Au, W. T. (2006). Teaching satisfaction scale: Measuring job satisfaction of teachers. *Educational and Psychological Measurement*, *66*(1), 172–185. https://doi.org/10.1177/0013164405278573

36. Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city woman. *Journal of Personality and Social Psychology*, *84*(3), 632–643. https://doi.org/10.1037/0022-3514.84.3.632

37. Hofmann, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A metaanalytic review. *Journal of Consulting and Clinical Psychology*, *78*(2), 169–183. https://doi.org/10.1037/a0018555

38. Hollon, S. D. (1999). Allegiance effects in treatment research: A commentary. *Clinical Psychology: Science and Practice*, *6*(1), 107–112. https://doi.org/10.1093/clipsy.6.1.107

39. Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science*, *6*(6), 537–559. https://doi.org/10.1177/1745691611419671

40. Hülsheger, U. R., Alberts, H. J., Feinholdt, A., & Lang, J. W. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, *98*(2), 310–325. https://doi.org/10.1037/a0031313

41. Hyland, P. K., Lee, R. A., & Mills, M. J. (2015). Mindfulness at work: A new approach to improving individual and organizational performance. *Industrial and Organizational Psychology*, *8*(4), 576–602. https://doi.org/10.1017/iop.2015.41

42. Imel, Z., Baldwin, S., Bonus, K., & MacCoon, D. (2008). Beyond the individual: Group effects in mindfulness-based stress reduction. *Psychotherapy Research*, *18*(6), 735–742. https://doi.org/10.1080/10503300802326038

43. Javaid, F., Malik, S., & Kazmi, U. (2022). *Development and validation of E-work stress scale: Effectiveness of mindfulness based intervention* [Doctoral Thesis]. Lahore college for women university. Lahore, Pakistan.

44. Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of*

Educational Research, *79*(1), 491–525. https://doi.org/10.3102/0034654308325693

45. Kabat-Zinn, J. (2011). Some reflections on the origins of MBSR, skillful means, and the trouble with maps. *Contemporary Buddhism*, *12*(1), 281–306. https://doi.org/10.1080/14639947.2011.564844

46. Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, *4*(1), 33–47. https://doi.org/10.1016/0163-8343(82)90026-3

47. Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, *4*(1), 33–47. http://doi.org/10.1016/0163-8343(82)90026-3

48. Kabat-Zinn, J. (1990). Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness. *Delta*.

49. Kabat-Zinn, J., & Chapman-Waldrop, A. (1988). Compliance with an outpatient stress reduction program: Rates and predictors of program completion. *Journal of Behavioral Medicine*, *11*(4), 333–352. https://doi.org/10.1007/BF00844934

50. Keng, S.-L. M. A., Smoski, M. J. P., Robins, C. J. P., Ekblad, A. G. P., & Brantley, J. G. M. D. (2012). Mechanisms of change in mindfulness-based stress reduction: Self-compassion and mindfulness as mediators of intervention outcomes. *Journal of Cognitive Psychotherapy*, *26*(3), 270–280. https://doi.org/10.1891/0889-8391.26.3.270

51. Khoury, B., Lecomte, T., Fortin, G., Masse, M., Therien, P., Bouchard, V., Chapleau, M. A., Paquin, K., & Hofmann, S. G. (2013). Mindfulness-based therapy: A comprehensive meta-analysis. *Clinical Psychology Review*, *33*(6), 763–771. https://doi.org/10.1016/j.cpr.2013.05.005

52. Tsang, K. K. Y., Shum, K. K., Chan, W. W. L., Li, S. X., Kwan, H. W., Su, M. R., Wong, B. P. H., & Lam, S. F. (2021). Effectiveness and mechanisms of mindfulness training for school teachers in difficult times: A randomized controlled trial. *Mindfulness*, *12*(11), 2820–2831. https://doi.org/10.1007/S12671-021-01750-1

53. Klatt, M. D., Buckworth, J., & Malarkey, W. B. (2009). Effects of low-dose mindfulness-based sress reduction (MBSR-ld) on working aduls. *Health Education and Behavior*, *36*(3), 601–614. https://doi.org/10.1177/1090198108317627

54. Klingbeil, D. A., & Renshaw, T. L. (2018). Mindfulness-based interventions for teachers: A meta-analysis of the emerging evidence base. *School Psychology Quarterly*, *33*(4), 501–511. https://doi.org/10.1037/spq0000291

55. Ledesma, D., & Kumano, H. (2009). Mindfulness-based stress reduction and cancer: A meta-analysis. *Psycho-Oncology*, *18*(6), 571–579. http://doi.org/10.1002/pon.1400

56. Li, Y., & Huang, J. (2017). Exploring the relationship between mindfulness and social media fatigue. *International Journal of Environmental Research and Public Health*, *14*(3), 251.

57. López-Araujo, B., & Osca, A. (2008). Un modelo para predecir el tecnoestrés y la satisfacción en teletrabajadores. *Rev. Psicol. Soc. Aplicada*, *18*, 63–85.

58. Luborsky, L., Diguer, L., Luborsky, E., & Schmidt, K. A. (1999). The efficacy of dynamicversus other psychotherapies: Is it true that "everyone has won and all must have prizes?"ean update. In D. S. Janowsky (Ed.), *Psychotherapy indications and outcomes* (p. 3.e22). American Psychiatric Association.

59. MacCoon, D. G., Imel, Z. E., Rosenkranz, M. A., Sheftel, J. G., Weng, H. Y., Sullivan, J. C., & Lutz, A. (2012). The validation of an active control intervention for Mindfulness Based Stress Reduction (MBSR). *Behaviour research and therapy*, *50*(1), 3-12.

60. MacCoon, D. G., Sullivan, J. C., Davidson, R. J., Stoney, C. M., Young, P. D., Thurlow, J. P., & Lutz, A. (2011). Health-enhancement program (HEP) guidelines. *Permanent*. http://digital.library.wisc.edu/1793/28198

61. Maslach, C., & Leiter, M. P. (2008). Early predictors of burnout and work engagement. *Journal of Applied Psychology*, *93*(3), 498–512. https://doi.org/10.1037/0021-9010.93.3.498

62. Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99–113. https://doi.org/10.1002/job.4030020205

63. Mendelson, T., Greenberg, M. T., Dariotis, J. K., Gould, L. F., Rhoades, B. L., & Leaf, P. J. (2010). Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth. *Journal of Abnormal Child Psychology*, *38*(7), 985–994. https://doi.org/10.1007/s10802-010-9418-x

64. Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology*, *69*(1), 28–44. https://doi.org/10.1002/jclp.21923

65. Jiménez-Picón, N., Romero-Martín, M., Ponce-Blandón, J. A., Ramirez-Baena, L., Palomo-Lara, J. C., & Gómez-Salgado, J. (2021). The relationship between mindfulness and emotional intelligence as a protective factor for healthcare professionals: Systematic review. *International Journal of Environmental Research and Public Health*, *18*(10), 5491–. https://doi.org/10.3390/IJERPH18105491

66. Raza, B., Ali, M., Naseem, K., Moeed, A., Ahmed, J., & Hamid, M. (2018). Impact of trait mindfulness on job satisfaction and turnover intentions: Mediating role of work-family balance and moderating role of work-family conflict. *Cogent Business and Management*, *5*(1), 1–20. https://doi.org/10.1080/23311975.2018.1542943

67. Ritcher, P., & Hacker, W. (1998). *Bleastung and Beanspruchung: Streb Ermudung and Burnout im Arbeitsleben (Workload and Strain: stress fatigue, and burnout in working life)*. Asagner.

68. Robins, C. J., Keng, S. L., Ekblad, A. G., & Brantley, J. G. (2012). Effects of mindfulness-based stress reduction on emotional experience and expression: A randomized controlled trial. *Journal of Clinical Psychology*, *68*(1), 117–131. http://doi.org/10.1002/jclp.20857

69. Rupprecht, S., Paulus, P., & Walach, H. (2018). Mind the teachers! The impact of mindfulness training on self-regulation and classroom performance in a sample of German school teachers. *European Journal of Educational Research*, *6*, 565–581. https:// doi. https://doi.org/10.12973/eu-jer.6. 4. 565

70. Salanova, M., Llorens, S., & Cifre, E. (2007). *NTP 730: Tecnoestrés, concepto, medida e intervención psicosocial*. Ministerio de Trabajo y Asuntos Sociales.

71. Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and work engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*(3), 293–315. https://doi.org/10.1002/job.248

72. Schaufeli, W. B., & Taris, T. W. (2005). A critical review of the job demands-resources model: Implications for improving work and health. In G. F. Bauer & O. Hämmig (Eds.), *Bridging occupational, organizational, and public health* (pp. 43–68). Springer.

73. Schmidt, S., Grossman, P., Schwarzer, B., Jena, S., Naumann, J., & Walach, H. (2011). Treating fibromyalgia with mindfulness-based stress reduction: Results from a 3-armed randomized controlled trial. *Pain*, *152*(2), 361–369. https://doi.org/10.1016/j.pain.2010.10.043

74. Shapiro, S. L., Bootzin, R. R., Figueredo, A. J., Lopez, A. M., & Schwartz, G. E. (2003). The efficacy of mindfulness-based stress reduction in the treatment of sleep disturbance in women with breast cancer: An exploratory study. *Journal of*

Psychosomatic Research, *54*(1), 85–91. https://doi.org/10.1016/s0022-3999(02)00546-9

75. Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training. *Training and Education in Professional Psychology*, *1*(2), 105–115. https://doi.org/10.1037/1931-3918.1.2.105

76. Shapiro, S. L., Oman, D., Thoresen, C. E., Plante, T. G., & Flinders, T. (2008). Cultivating mindfulness: Effects on well-being. *Journal of Clinical Psychology*, *64*(7), 840–862. https://doi.org/10.1002/jclp.20491

77. Skinner, E., & Beers, J. (2016). Mindfulness and teachers' coping in the classroom: A developmental model of teacher stress, coping, and everyday resilience. In K. A. Schonert-Reichel & R. W. Roeser (Eds.), *Handbook of mindfulness in education* (pp. 99–118). Springer. https://doi.org/10.1007/978-1-4939-3506-2_7

78. Speca, M., Carlson, L. E., Goodey, E., & Angen, M. (2000). A randomized, wait-list controlled clinical trial: The effect of a mindfulness meditation-based stress reduction program on mood and symptoms of stress in cancer outpatients. *Psychosomatic Medicine*, *62*(5), 613–622. https://doi.org/10.1097/00006842-200009000-00004

79. Strauss, C., Cavanagh, K., Oliver, A., & Pettman, D. (2014). Mindfulnessbased interventions for people diagnosed with a current episode of an anxiety or depressive disorder: A meta-analysis of randomised controlled trials. *PLOS ONE*, *9*(4), e96110. https://doi.org/10.1371/journal.pone.0096110

80. van der Velden, A. M., Kuyken, W., Wattar, U., Crane, C., Pallesen, K. J., Dahlgaard, J., Fjorback, L. O., & Piet, J. (2015). A systematic review of mechanisms of change in mindfulness-based cognitive therapy in the treatment of recurrent major depressive disorder. *Clinical Psychology Review*, *37*, 26–39. http://doi.org/10.1016/j.cpr.2015.02.001

81. Von der Embse, N., & Mankin, A. (2020). Changes in teacher stress and wellbeing throughout the academic year. *Journal of Applied School Psychology*, *18040* 31, 1–20. https:// doi. https://doi.org/10.1080/15377 903

82. Wampold, B. E. (2001). *The great psychotherapy debate: Models, methods, and findings*. Lawrence Erlbaum Associates Publishers.

83. Wang, X., Tan, S. C., & Li, L. (2020). Measuring university students' technostress in technology-enhanced learning: Scale development and validation. *Australasian Journal of Educational Technology*, *36*, 96–112. https://doi.org/10.14742/ajet.5329

84. Yeo, G. B., & Neal, A. (2017). An examination of the dynamic relationship between mindfulness and work engagement. *Journal of Vocational Behavior*, *100*, 180–189.

85. Youssef, C. M., & Luthans, F. (2007). Positive organizational behavior in the workplace. *Journal of Management*, *33*(5), 774–800. https://doi.org/10.1177/0149206307305562